DOCUMENT RESUME

ED 029 788 SE 006 640

By-Creswell, Doris E.; Berger, Emanuel
Mathematics Content Authority List: K-6, Abridged.
Pennsylvania State Dept. of Public Instruction, Harrisburg. Bureau of General and Academic Education.
Pub Date Nov 68
Note-37p.
EDRS Price MF-$0.25 HC-$1.95
Descriptors-*Curriculum, *Curriculum Development, *Elementary School Mathematics, *Indexes (Locaters), *Information Retrieval, Information Storage, Mathematics

The Mathematics Content Authority List for K-6 (abridged) represents an attempt to list in one volume the mathematics concepts and skills currently taught in the elementary schools. The list consists of approximately 300 items involving concepts from number systems and numeration, sets, geometry, measurement of non-geometric quantities, and number patterns and relationships. Definitions, explanations, and examples are provided in an expanded version of this list. This list is used by the Pennsylvania Retrieval of Information for Mathematics Education System (PRIMES) Project to code elementary school mathematics textbooks and textbook activities for storage and retrieval. (RP)

ED029788

PENNSYLVANIA DEPARTMENT OF PUBLIC INSTRUCTION

1968

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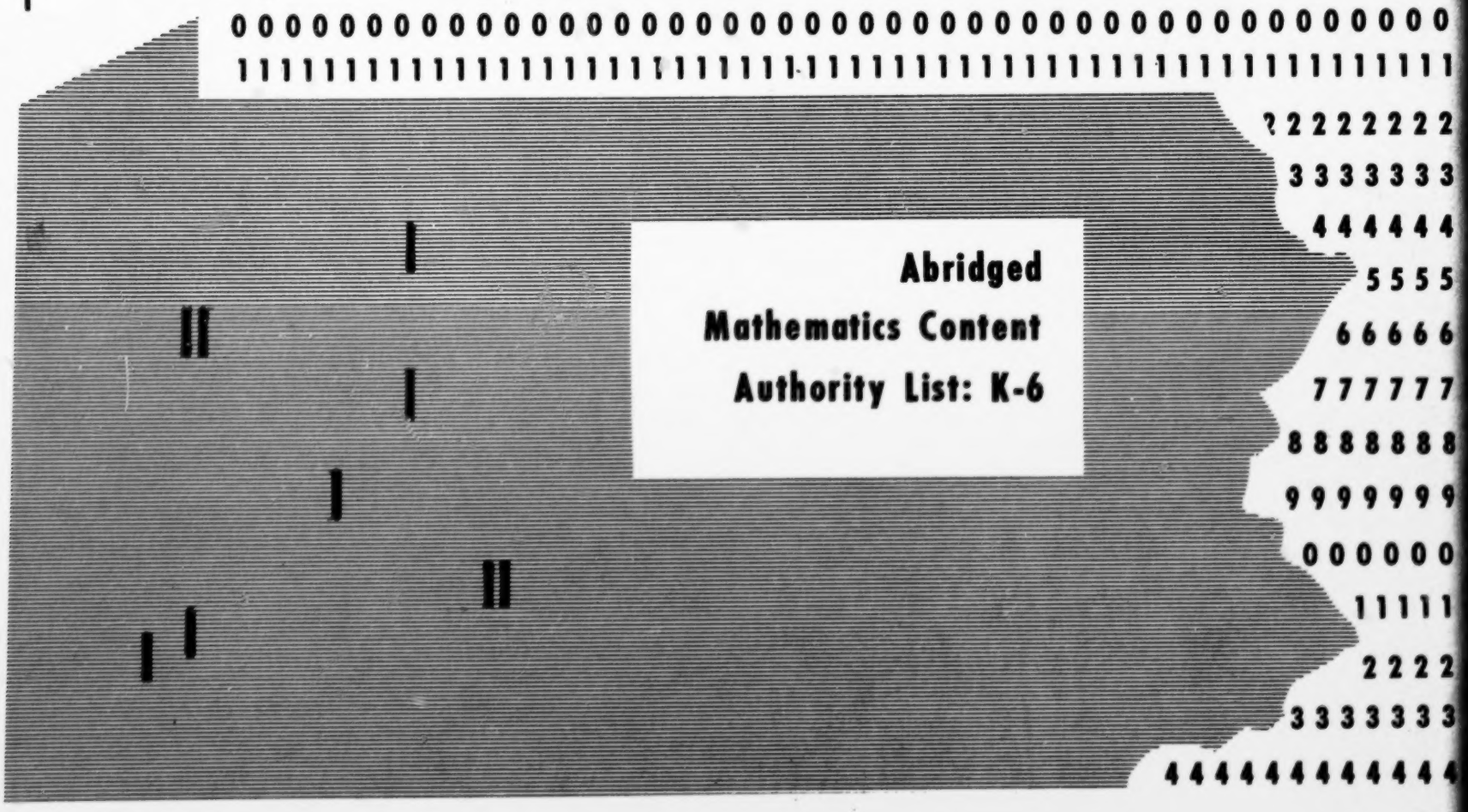

PRIMES

PENNSYLVANIA RETRIEVAL OF INFORMATION FOR MATHEMATICS EDUCATION SYSTEM

SE 006 640

MATHEMATICS CONTENT AUTHORITY
LIST: K-6 (abridged)

Commonwealth of Pennsylvania
Department of Public Instruction
Bureau of Research
Bureau of General and
Academic Education

NOVEMBER, 1968

PREFACE

The *MATHEMATICS CONTENT AUTHORITY LIST: K-6 (abridged)* represents an attempt to collect in one volume the mathematics concepts and skills currently taught in the elementary schools. The list consists of approximately three hundred items. Definitions, explanations and examples are provided in an expanded version of this list. The numbers in parentheses following selected items are cross-references to other items that may be relevant. This list is used by the Pennsylvania Retrieval of Information for Mathematics Education System (PRIMES) project to code twenty elementary school mathematics series. The numbers along the left margin are code numbers used to access a computer-generated index that lists the relevant lessons in the commercially published series.

The *MATHEMATICS CONTENT AUTHORITY LIST: K-6 (abridged)* is the result of contributions made by many individuals over the last three years. But were it not for the dedication and commitment of *Dr. Joy E. Mahachek*, retired, chairman, mathematics department, Indiana University of Pennsylvania, this publication would not have been possible. The final draft was carefully reviewed by *Dr. Lee Boyer*, retired, professor, mathematics department, Millersville State College, and many of his suggestions were incorporated in the text.

Among the other people who participated in the development of the publication are: *Dr. J. Fred Weaver*, University of Wisconsin; *Dr. Earle F. Myers*, University of Pittsburgh; *Dr. C. Alan Riedesel*, The Pennsylvania State University, who served on a committee to review the main concepts of this publication and to edit an early draft of the content items.

Additional suggestions were made by *Dr. Sara Rhue*, Temple University; *Dr. Michael Montemuro*, West Chester State College, Pennsylvania; *Dr. Willard Hennemann* and *Miss Mildred Reigh*, Indiana University of Pennsylvania; and *Mr. Donald Sapko*, California State College, Pennsylvania.

Doris E. Creswell
Mathematics Education Adviser

Emanuel Berger
Educational Research Associate

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0002 . . Topic I: Number Systems

0004 . . . A. Whole Numbers

0006 . . . . . 1. Basic concepts

0010 . . . . . a. Definition: set of whole numbers

0019 . . . . . b. Developing cardinal number sense

0020 . . . . . 1) Developing cardinal number zero
(See 4070, 3050)

0030 . . . . . 2) Developing cardinal numbers one through ten
(See 3050, 0060)

0035 . . . . . 3) Developing cardinal numbers beyond ten
(See 3070, 0060)

0040 . . . . . c. Developing ordinal number sense
(See 0075)

0050 . . . . . d. Associating the idea of number with the number line (one-to-one correspondence)
(See 4010)

0060 . . . . . e. Counting to find cardinal number of set (one-to-one correspondence)
(See 0030, 0035, 4010)

0070 . . . . . f. Ordinal counting

0075 . . . . . g. Sequence of numbers increasing by one
(See 0040, 7090)

0080 . . . . . h. Skip counting
(See 7000, 7055, 7090, 0380)

0090 . . . . . i. Other counting: backward, rote, etc.

0100 . . . . . j. Ordering numbers as greater than, less than, equal to or not equal to and between; and objects as fewer than or more than
(See 4010, 4030)

0102 . . . . . 2. Operations

0104 . . . . . a. Addition

0106 . . . . . 1) Properties

0110 . . . . . a) Addition, a binary operation

0120 . . . . . b) Addition developed from union of disjoint sets or joining action
(See 4093)

0130 . . . . . c) Addition developed from number line

0140 . . . . . d) Closure, a property of addition

0150 . . . . . e) Commutativity, a property of addition

0160 . . . . . f) Associativity, a property of addition

0170 . . . . . g) Zero, the identity element in addition

0180 . . . . . h) Role of one in addition

0182 . . . . . 2) Computation

0184 . . . . . a) Two addends

0190 . . . . . (1) Elementary facts of addition

0200 . . . . . (2) Multi-digits used in addition without renaming
(See 3010)

0210 . . . . . (3) Multi-digits used in addition with renaming
(See 3010)

0221 . . . . . b) More than two addends

0223 . . . . . (1) Single digits used in addition without renaming

0225 . . . . . (2) Single digits used in addition with renaming

0227 . . . . . (3) Multi-digits used in addition without renaming
(See 3010)

0229 . . . . . (4) Multi-digits used in addition with renaming
(See 3010)

0232 . . . . . b. Subtraction

0234 . . . . . 1) Properties

0240 . . . . . a) Subtraction, a binary operation

0250 . . . . . b) Subtraction developed in relation to subsets or separating action
(See 4060)

0260 . . . . . c) Subtraction developed from number line

0270 . . . . . d) Subtraction, the inverse of addition (relationship of addition and subtraction)

0280 . . . . . e) Role of zero in subtraction

0290 . . . . . f) Nonclosure, noncommutativity, nonassociativity of subtraction of whole numbers

0300 . . . . . g) Role of one in subtraction

0302 . . . . . 2) Computation

0310 . . . . . a) Elementary facts of subtraction

0320 . . . . . b) Multi-digits used in subtraction without renaming

0330 . . . . . c) Multi-digits used in subtraction with renaming
(See 3010)

0332 . . . . . c. Multiplication

0334 . . . . . 1) Properties

0340 . . . . . a) Multiplication, a binary operation

0350 . . . . . b) Multiplication developed from union of two or more equivalent sets

0360 . . . . . c) Multiplication developed from arrays

0370 . . . . . d) Multiplication developed from the number line

0380 . . . . . e) Multiplication developed as repeated addition (See 0080)

0390 . . . . . f) Multiplication developed from Cartesian product sets (See 4160)

0400 . . . . . g) Closure, a property of multiplication

0410 . . . . . h) Commutativity, a property of multiplication

0420 . . . . . i) Associativity, a property of multiplication

0430 . . . . . j) Distributivity, a property of multiplication over addition or subtraction

0440 . . . . . k) One, the identity element in multiplication

0450 . . . . . l) Property of zero in multiplication

0452 . . . . . 2) Computation

0454 . . . . . a) Two factors

0460 . . . . . (1) Elementary facts of multiplication

0470 . . . . . (2) Multi-digits used in multiplication without renaming

0480 . . . . . (3) Multi-digits used in multiplication with renaming

0490 . . . . . b) Multiplication with more than two factors without renaming

0500 . . . . . c) Multiplication with more than two factors with renaming

0510 . . . . . d) Multiples of ten as a factor

0515 . . . . . e) A power of ten as a factor

0520 . . . . . f) A number expressed in exponential form as a factor
(See 3120)

0522 . . . . . d. Division

0524 . . . . . 1) Properties

0530 . . . . . a) Division, a binary operation

0540 . . . . . b) Division developed from partitioning into equivalent sets
(See 4060)

0550 . . . . . c) Division developed as successive subtraction

0555 . . . . . d) Division developed from arrays

0560 . . . . . e) Division developed from the number line

0570 . . . . . f) Division, the inverse of multiplication

0575 . . . . . g) Distributivity of division over addition or subtraction

0580 . . . . . h) Role of one in division

0590 . . . . . i) Zero not a divisor

0600 . . . . . j) Nonclosure, noncommutativity, nonassociativity of division

0602 . . . . . 2) Computation

0610 . . . . . a) Elementary facts of division

0620 . . . . . b) Division - known factor (divisor), less than ten, product (dividend) not renamed; no remainder

0630 . . . . . c) Division - known factor (divisor), less than ten, product (dividend) not renamed; remainder

0640 . . . . . d) Division - known factor (divisor), less than ten, product (dividend) renamed; no remainder

0650 . . . . . e) Division - known factor (divisor), less than ten, product (dividend) renamed; remainder

0660 . . . . . f) Division by ten or greater numbers

0665 . . . . . g) Division by multiples of ten

0667 . . . . . h) Division by powers of ten

0670 . . . . . i) Division with numbers expressed in exponential form

(See 3120)

0672 . . . . . e. Combined operations (addition, subtraction, multiplication, division)

0680 . . . . . 1) Two sequential operations

0690 . . . . . 2) More than two sequential operations

0700 . . . . . f. Raising to powers and finding roots (See 3120)

0002 . . Topic I: Number Systems

0992 . . . B. Nonnegative Rational Numbers (fractional numbers)

0994 . . . . . 1. Basic concepts

1000 . . . . . a. Definition: set of nonnegative rationals (fractional numbers)

1005 . . . . . b. Developed in terms of basic operations

1010 . . . . . c. Developed from subset of a given set

1020 . . . . . d. Developed as distances on the number line

1030 . . . . . e. Developed from plane and solid regions

1035 . . . . . f. Developed in other ways

1040 . . . . . g. Whole numbers as related to set of nonnegative rationals (fractional numbers)
(See 3040)

1060 . . . . . h. Definition: equality
(See 3020, 3040)

1080 . . . . . i. Counting

1090 . . . . . j. Ordering: greater than; less than; equal to; not equal to; between

1100 . . . . . k. Density

1102 . . . . . 2. Operations

1104 . . . . . a. Addition

1106 . . . . . 1) Properties

1110 . . . . . a) Addition, a binary operation

1120 . . . . . b) Addition developed from union of disjoint sets

1130 . . . . . c) Addition developed from the number line

1140 . . . . . d) Addition developed from plane or solid regions

1150 . . . . . e) Closure, a property of addition

1160 . . . . . f) Commutativity, a property of addition

1170 . . . . . g) Associativity, a property of addition

1180 . . . . . h) Zero, the identity element in addition

1182 . . . . . 2) Computation

1190 . . . . . a) Addition with common fraction notation, equal denominators (like fractions)

1200 . . . . . b) Addition with common fraction notation, unequal denominators (unlike fractions) (See 7060)

1210 . . . . . c) Addition with exact decimal fraction notation

1212 . . . . . b. Subtraction

1214 . . . . . 1) Properties

1220 . . . . . a) Subtraction, a binary operation

1230 . . . . . b) Subtraction developed in relation to subsets

1240 . . . . . c) Subtraction developed from the number line

1250 . . . . . d) Subtraction developed from plane or solid regions

1260 . . . . . e) Subtraction, the inverse of addition

1270 . . . . . f) Role of zero in subtraction

1280 . . . . . g) Nonclosure, noncommutativity, nonassociativity in subtraction

1282 . . . . . 2) Computation

1290 . . . . . a) Subtraction with common fraction notation, equal denominators (like fractions)

1300 . . . . . b) Subtraction with common fraction notation, unequal denominators (unlike fractions) (See 7060)

1310 . . . . . c) Subtraction with decimal fraction notation

1312 . . . . . c. Multiplication

1314 . . . . . 1) Properties

1320 . . . . . a) Multiplication, a binary operation

1330 . . . . . b) Multiplication developed from addition of two or more equal fractions

1340 . . . . . c) Multiplication developed from arrays or sets

1345 . . . . . d) Multiplication developed from the number line

1350 . . . . . e) Multiplication developed from plane and solid regions

1360 . . . . . f) Closure, a property of multiplication

1370 . . . . . g) Commutativity, a property of multiplication

1380 . . . . . h) Associativity, a property of multiplication

1390 . . . . . i) Distributivity, a property of multiplication over addition or subtraction

1400 . . . . . j) One, the identity element in multiplication

1410 . . . . . k) Role of zero in multiplication

1420 . . . . . l) Multiplicative inverse (reciprocal) for any fractional number greater than zero

1422 . . . . . 2) Computation

1430 . . . . . a) Multiplication with common fraction notation

1440 . . . . . b) Multiplication with decimal fraction notation

1441 . . . . . c) Multiplication by powers or multiples of ten

1442 . . . . . d. Division

1444 . . . . . 1) Properties

1450 . . . . . a) Division, a binary operation

1460 . . . . . b) Division developed from successive subtraction of two or more equal fractional numbers

1470 . . . . . c) Division developed from the number line

1480 . . . . . d) Division developed from plane and solid regions

1490 . . . . . e) Division, the inverse of multiplication with fractional numbers

1500 . . . . . f) Closure, a property of division

1510 . . . . . g) Role of one in division

1520 . . . . . h) Zero not a divisor

1530 . . . . . i) Noncommutativity, nonassociativity of division

1532 . . . . . 2) Computation

1540 . . . . . a) Division with common fraction notation

1550 . . . . . b) Division with decimal fraction notation

1555 . . . . . c) Division by powers or multiples of ten

1560 . . . . . e. Sequential operations

0002 . . Topic I: Number Systems

1992 . . . C. Integers

1994 . . . . . 1. Basic concepts

2000 . . . . . a. Definition: set of integers

2010 . . . . . b. Developed from the number line

2020 . . . . . c. Developed from physical world situations

2030 . . . . . d. Ordering: greater than; less than; equal to or not equal to; between

2040 . . . . . e. Directed numbers: absolute value

2042 . . . . . 2. Operations

2044 . . . . . a. Addition

2046 . . . . . 1) Properties

2050 . . . . . a) Addition, a binary operation

2053 . . . . . b) Addition developed from number line

2055 . . . . . c) Addition developed from physical world situations

2060 . . . . . d) Closure, a property of addition

2070 . . . . . e) Commutativity, a property of addition

2080 . . . . . f) Associativity, a property of addition

2090 . . . . . g) Zero, the identity element in addition

2100 . . . . . h) Additive inverse for addition

2110 . . . . . 2) Addition computation

2112 . . . . . b. Subtraction

2114 . . . . . 1) Properties

2120 . . . . . a) Subtraction, a binary operation

2123 . . . . . b) Subtraction developed from number line

2125 . . . . . c) Subtraction developed from physical world situations

2130 . . . . . d) Subtraction, the inverse of addition

2140 . . . . . e) Role of zero in subtraction

2150 . . . . . f) Closure, a property of subtraction

2160 . . . . . g) Noncommutativity, nonassociativity of subtraction

2170 . . . . . 2) Subtraction computation

2172 . . . . . c. Multiplication

2174 . . . . . 1) Properties

2180 . . . . . a) Multiplication, a binary operation

2183 . . . . . b) Multiplication developed from number line

2185 . . . . . c) Multiplication developed from physical world situations

2190 . . . . . d) Closure, a property of multiplication

2200 . . . . . e) Commutativity, a property of multiplication

2210 . . . . . f) Associativity, a property of multiplication

2220 . . . . . g) One, the identity element in multiplication

2230 . . . . . 2) Multiplication computation

2232 . . . . . d. Division

2234 . . . . . 1) Properties

2240 . . . . . a) Division, a binary operation

2243 . . . . . b) Division developed from number line

2245 . . . . . c) Division developed from physical world situations

2250 . . . . . d) Division, the inverse of multiplication

2255 . . . . . e) Role of one in division

2260 . . . . . f) Nonclosure, noncommutativity, nonassociativity of division

2270 . . . . . 2) Division computation

0002 . . Topic I: Number Systems

2500 . . . D. Negative rationals (fractional numbers)

2510 . . . . . 1. Basic concepts

2520 . . . . . a. Definition for a set of negative rationals

2530 . . . . . b. Developed from number line

2600 . . . . . 2. Computation

0002 . . Topic I: Number Systems

2700 . . . E. Natural numbers (counting numbers)

2710 . . . . . 1. Basic concepts

2720 . . . . . a. Definition for a set of natural numbers

2730 . . . . . b. Relation to set of whole numbers, nonnegative rationals, integers, negative rationals

2992 . . Topic II: Numeration and Notation

3000 . . . A. Difference between number and numeral

3002 . . . B. Difference numerals for the same number

3010 . . . . . 1. Expanded notation for whole numbers
(See 0200, 0210, 0227, 0229, 0330, 3070, 3080)

3015 . . . . . 2. Expanded notation for nonnegative rationals (fractions)

3020 . . . . . 3. Equivalent common fraction notation
(See 1060)

3025 . . . . . 4. Equivalent mixed numeral notation

3030 . . . . . 5. Equivalent decimal fraction notation with terminating decimals

3033 . . . . . 6. Equivalent decimal notation with repeating decimals

3035 . . . . . 7. Equivalent percent notation
(See 8004)

3040 . . . . . 8. Other names for a number
(See 1040, 1060)

3042 . . . C. Place value in base ten

3050 . . . . . 1. Reading and/or writing words or numerals for the ten basic symbols (0-9)
(See 0020, 0030)

3070 . . . . . 2. Units, tens (10-99)
(See 0035, 3010)

3080 . . . . . 3. Beyond tens
(See 3010)

3090 . . . . . 4. Commas to separate into periods

3100 . . . . . 5. Rounding numbers
(See 8150)

3110 . . . . . 6. Decimal fractions

3120 . . . . . 7. Exponential notation
(See 0520, 0670, 0700)

3130 . . . . . 8. Scientific notation

3140 . . . D. Historical development of number concepts

3150 . . . E. Historical systems of notation (nonplace or place value)
(See 3160)

3160 . . . F. Working with nondecimal place value systems (other number bases)
(See 3150)

3992 . . Topic III: Sets: physical and abstract

3994 . . . A. Description of sets

4000 . . . B. Set members or elements

4004 . . . C. Kinds of sets

4010 . . . . . 1. Equivalent (one-to-one correspondence)
(See 0050, 0060, 0100)

4030 . . . . . 2. Non-equivalent (general)
(See 0100)

4035 . . . . . 3. Non-equivalent (one-to-many correspondence)

4037 . . . . . 4. Equal (identical)

4040 . . . . . 5. Unequal

4060 . . . . . 6. Subsets
(See 0250, 0540)

4070 . . . . . 7. The empty set
(See 0020)

4090 . . . . . 8. Disjoint

4093 . . . . . 9. Union of sets
(See 0120)

4095 . . . . . 10. Intersection of sets

4097 . . . . . 11. Venn diagrams

4100 . . . . . 12. Finite

4110 . . . . . 13. Infinite

4120 . . . . . 14. Universal and complement

4125 . . . . . 15. Solution sets
(See 8170)

4160 . . . . . 16. Cartesian product sets (cross products)
(See 0390)

4992 . . Topic IV: Geometry

5000 . . . A. Intuitive concepts of geometric figures and ideas

5010 . . . . . 1. Geometric figures in environment

5020 . . . . . 2. Geometric designs or patterns (sequences)

5030 . . . . . 3. Spatial relations without measurement (size, position)

5040 . . . . . 4. Two dimensional figures (plane)

5050 . . . . . 5. Three dimensional figures (solid)

5060 . . . . . 6. Curves: simple, closed, open

5070 . . . . . 7. Regions: interior, exterior

5080 . . . . . 8. Representations of point, line, plane, space

5082 . . . B. Concepts of geometric figures and ideas explored in depth

5090 . . . . . 1. Point

5100 . . . . . 2. Line

5101 . . . . . 3. Line segment

5103 . . . . . 4. Ray

5105 . . . . . 5. Related lines: intersecting, parallel, skew, oblique, ...

5115 . . . . . 6. Angles

5125 . . . . . 7. Kinds of angles

5140 . . . . . 8. Regions: interior, exterior

5143 . . . . . 9. Planes: two dimensional figures

5145 . . . . . 10. Polygons (plane figures)

5150 . . . . . a. Triangles

5160 . . . . . b. Quadrilaterals

5170 . . . . . c. Other polygons

5172 . . . . . 11. Curves

5174 . . . . . a. Simple, closed, open

5176 . . . . . b. Convex, concave

5180 . . . . . 12. Circles

5183 . . . . . 13. Space: three dimensional figures

5185 . . . . . 14. Space figures: three dimensional figures

5186 . . . . . a. Pyramid

5188 . . . . . b. Prism

5191 . . . . . c. Cylinder

5192 . . . . . d. Cone

5194 . . . . . e. Sphere

5195 . . . . . 15. Conic sections other than circles; the ellipse, parabola, and hyperbola

5202 . . . C. Construction

5210 . . . . . 1. Line constructions (one dimensional figures)

5220 . . . . . 2. Two dimensional figures (plane figures)

5230 . . . . . 3. Three dimensional figures (figures in space)

5232 . . . D. Metric geometry

5234 . . . . . 1. Comparing sizes, shapes, distances (including latitude, longitude)

5240 . . . . . a. Congruency

5245 . . . . . b. Symmetry

5250 . . . . . c. Similarity

5255 . . . . . d. Similarity: scale drawing
(See 8000)

5258 . . . . . 2. Measurement of geometric quantities

5260 . . . . . a. Line segments with ruler and/or compass or other measuring device
(See 6030, 6032, 6060, 6065)

5270 . . . . . b. Angles with protractor and/or compass or other measuring device

5280 . . . . . c. Perimeter or circumference of simple closed curves
(See 6030, 6032)

5290 . . . . . d. Area of plane figures
(See 6034, 6035)

5300 . . . . . e. Volume of solids
(See 6036, 6037)

5400 . . . E. Operations with geometric figures

5410 . . . . . 1. Union

5420 . . . . . 2. Intersection

5500 . . . F. Other topics

5510 . . . . . 1. Separation of sets of points

5520 . . . . . 2. Locus of points

5992 . . Topic V: Measurement of Nongeometric Quantities

6000 . . . A. Meaning of measurement (direct, indirect)

6001 . . . . . 1. Approximate nature of measurement

6003 . . . . . 2. Precision

6005 . . . . . 3. The greatest possible error

6007 . . . B. Units of Measure

6008 . . . . . 1. Historical development of units of measure

6009 . . . . . a. Non-standard units such as foot, cubit, furlong leading to the standardized English system

6010 . . . . . b. Metric units

6025 . . . . . 2. Linear units of measure

6028 . . . . . a. Non-standard

6030 . . . . . b. English units for yards or less
(See 5260, 5280)

6032 . . . . . c. Metric units for meters or less
(See 5260, 5280)

6034 . . . . . 3. Square units of measure in the English system of measures
(See 5290)

6035 . . . . . 4. Square units of measure in the metric system of measures
(See 5290)

6036 . . . . . 5. Cubic units of measure in the English system
(See 5300)

6037 . . . . . 6. Cubic units of measure in the metric system
(See 5300)

6038 . . . C. Need for modern units of measure

6040 . . . D. Money

6050 . . . E. Time

6060 . . . F_1. Distance in English units for lengths longer than a yard
(See 5260)

6065 . . . F_2. Distance in metric units for lengths longer than a meter
(See 5260)

6070 . . . G_1. Liquids in English units

6075 . . . G_2. Liquids in metric units

6080 . . . H. Temperature: Fahrenheit and centigrade

6090 . . . I_1. Weight in English units

6095 . . . I_2. Weight in metric units

6100 . . . J. Dry measures

6110 . . . K. Quantity (dozen, gross, etc.)

6120 . . . L. Operations related to denominate numbers

6130 . . . M. Conversion to other standard units measuring several kinds of nongeometric quantities

6992 . . Topic VI: Number Patterns and Relationships

6994 . . . . A. Elementary number theory

7000 . . . . . 1. Odd and even numbers
(See 0080)

7010 . . . . . 2. Factors and primes

7020 . . . . . 3. General composite numbers

7030 . . . . . 4. Special composite numbers

7050 . . . . . 5. Greatest common factor

7055 . . . . . 6. Multiples
(See 0080)

7060 . . . . . 7. Least common multiple
(See 1200, 1300)

7070 . . . . . 8. Unique factorization (prime factorization)

7080 . . . . . 9. Rules for divisibility

7082 . . . . B. General number sequences and patterns

7088 . . . . C. Special number sequences

7090 . . . . . 1. Arithmetic progressions
(See 0075, 0080)

7100 . . . . . 2. Geometric progressions

7110 . . . . . 3. Triangular numbers

7120 . . . . . 4. Square numbers

7130 . . . . . 5. Factorial numbers

7140 . . . . . 6. Grid

7150 . . . . . 7. Fibonacci numbers

7160 . . . . D. Special patterns (including short cuts)

7992 . . Topic VII: Other Topics

8000 . . . . A. Ratio and proportion
(See 5255)

8002 . . . . . 1. Rate pairs

8003 . . . . B. Percent

8004 . . . . . 1. Meaning and vocabulary
(See 3035)

8005 . . . . . 2. Developed through use of ratios

8006 . . . . . 3. Developed through use of equations

8007 . . . . . 4. Developed through use of the formula P = b x r
(percentage equals base times rate)

8008 . . . . . 5. Computation related to percent

8012 . . . . C. Graphs

8020 . . . . . 1. Solution sets of equalities and inequalities on the number line

8030 . . . . . 2. Ordered pairs on a coordinate plane

8040 . . . . . 3. Solution sets of equalities and inequalities on a coordinate plane

8044 . . . . D. Descriptive statistics

8050 . . . . . 1. Frequency tables, charts, graphs (bar, line, circle, dot, picture, etc.)

8060 . . . . . 2. Measures of central tendency: average, mean, mode, median

8070 . . . . . 3. Measures of variability: range, quartiles, percentiles, average deviation, standard deviation

8080 . . . . E. Probability

8084 . . . . F. Finite mathematical systems

8100 . . . . . 1. Modular arithmetic (clock arithmetic)

8110 . . . . . 2. Without numbers

8120 . . . . . 3. Other

8130 . . . . G. Logic

8140 . . . . H. Functions and relations

8150 . . . . I. Estimation
(See 3100)

8160 . . . . J. Relations (properties of)

8170 . . . . K. Mathematical sentences (equations)
(See 4125)

8992 . . Topic VIII: Summaries

9000 . . . . A. General review

9010 . . . . B. Test

9020 . . . . C. Review properties of and basic operations with whole numbers

9030 . . . . D. Review properties of and basic operations with fractional numbers

9040 . . . . E. Review properties of and basic operations with integers

9050 . . . . F. Review of numeration

9060 . . . . G. Review of sets

9070 . . . . H. Review of geometry

9080 . . . . I. Review of measurement

9090 . . . . J. Review of number patterns and relationships

9100 . . . . K. Review of other topics

9101 . . . . . 1. Ratio and proportion

9102 . . . . . 2. Percent

9103 . . . . . 3. Graphs

9104 . . . . . 4. Statistics

9105 . . . . . 5. Probability

9106 . . . . . 6. Finite mathematical systems

9107 . . . . . 7. Logic

9108 . . . . . 8. Functions and relations

9109 . . . . . 9. Estimation

9110 . . . . . 10. Relations, properties

9111 . . . . . 11. Mathematical sentences (equations)